# 2 COMBINED MONITORING REPORT

In accordance with Title V Permit Standard Condition 1.F, BAAQMD Rule 8-34-411 and §60.757(f) in the NSPS, this report is a Combined Semi-Annual Title V Report and Partial 8-34 Annual Report that is required to be submitted by Ox Mountain Landfill. The report contains monitoring data for the operation of the landfill gas collection and control system (GCCS). The operational records have been reviewed and summarized. The timeframe included in this report is October 1, 2015 through March 31, 2016. The following table lists the rules and regulations that are required to be included in this Combined Report.

**TABLE 2-1 - COMBINED REPORT REQUIREMENTS**

| Rule | Requirement | Location in Report |
|---|---|---|
| 8-34-501.1 §60.757(f)(4) | All collection system downtime, including individual well shutdown times and the reason for the shutdown. | Section 2.1, Appendices C & D |
| 8-34-501.2 §60.757(f)(3) | All emission control system downtime and the reason for the shutdown. | Section 2.2, Appendix D |
| 8-34-501.3, 8-34-507, §60.757(f)(1) | Continuous temperature for all operating flares and any enclosed combustor subject to Section 8-34-507. | Section 2.3, Appendix E |
| 8-34-501.4, 8-34-505, 8-34-510 | Testing performed to satisfy any of the requirements of this rule. | Section 2.4 & 2.10 Appendices F & J |
| 8-34-501.6, 8-34-503, 8-34-506, §60.757(f)(5) | For operations subject to Section 8-34-503 and 8-34-506, records of all monitoring dates, leaks in excess of the limits in Section 8-34-301.2 or 8-34-303 that are discovered by the operator, including the location of the leak, leak concentration in parts per million by volume (ppmv), date of discovery, the action taken to repair the leak, date of the repair, date of any required re-monitoring, and the re-monitored concentration in ppmv. | Section 2.6 & 2.7, Appendices G & H |
| 8-34-501.7 | Annual waste acceptance rate and current amount of waste in-place. | Section 2.8, Appendix I |
| 8-34-501.8 | Records of the nature, location, amount, and date of deposition of non-degradable wastes, for any landfill areas excluded from the collection system requirement as documented in the GCCS Design Plan. | Section 2.9 |
| 8-34-501.9, 8-34-505, §60.757(f)(1) | For operations subject to Section 8-34-505, records of all monitoring dates and any excesses of the limits stated in Section 8-34-305 that are discovered by the operator, including well identification number, the measured excess, the action taken to repair the excess, and the date of repair. | Section 2.10, 2.10.1, Appendices J & K |
| 8-34-501.10, 8-34-508, §60.757(f)(1) | Continuous gas flow rate records for any site subject to Section 8-34-508. | Section 2.11, Appendices E and L |
| 8-34-501.11, 8-34-509 | For operations subject to Section 8-34-509, records or key emission control system operating parameters. | Section 2.2.2 |
| 8-34-501.12 | The records required above shall be made available and retained for a period of 5 years. | Section 1.2 |

| Rule | Requirement | Location in Report |
|---|---|---|
| §60.757(f)(1) | Value and length of time for exceedance of parameters monitored per §60.756(a), (b), or (d). | Section 2.3 |
| §60.757(f)(2) | Description and duration of all periods when the gas stream is diverted from the control device through a bypass line or the indication of bypass flow as specified under §60.756. | Section 2.2.1 |
| §60.757(f)(3) | Description and duration of all periods when control devices were not operating for more than 1 hour §60.756. | Section 2.2 |
| §60.757(f)(4) | All periods when collection system was not operating for more than 5 days. | Section 2.1 |
| §60.757(f)(5) | Location of each surface emission excess and all re-monitoring dates and concentration. | Section 2.6 |
| §60.757(f)(6) | The date of installation and the location of each well or collection system expansion added pursuant to paragraphs (a)(3), (b), ( c)(4) of §60.755. | Section 2.12, Appendices A & C |

## 2.1 Collection System Operation (BAAQMD 8-34-501.1 & §60.757(f)(4))

Appendix A contains a map of Ox Mountain's GCCS. Section 2.1.1 includes the GCCS downtime for the reporting period. The information contained in Appendix C includes the individual well start-up and shutdown times and the reason for the SSM events.

### 2.1.1 Collection System Downtime

During the period covered in this report, the GCCS was not shut down for more than five (5) days on any one occasion. There was no downtime for the reporting period of October 1, 2015 through March 31, 2016. The total downtime for 2015 was 35.94 hours out of an allowable 240 hours per year.

Appendix D contains the A-7, A-8, and A-9 Flares and the Ameresco Internal Combustion (IC) engines Downtime Reports which list dates, times, and lengths of shutdowns for the reporting period. Appendix E contains the GCCS Downtime.

### 2.1.2 Well Start-Up & Disconnection Log

There were 24 wellfield SSM events that occurred during the reporting period. A total of five (5) wells were decommissioned, and 14 wells were started-up, pursuant to BAAQMD Regulation 8-34-117. Four (4) letters were submitted to BAAQMD regarding well decommissions and start-ups. See Appendix C, Wellfield SSM Log for details.

## 2.2 Emission Control Device Downtime (BAAQMD 8-34-501.2 & §60.757(f)(3))

The emission control system consists of three (3) flares (A-7, A-8, and A-9), which all began operation in 2004 and the six (6) IC Engines operated by Ameresco. The six (6) IC Engines are under a separate permit and are reported by a third-party. The control system was not bypassed at any time during the reporting period. Raw LFG was not emitted during the reporting period. The SSM logs for the A-7, A-8, and A-9 Flares and the IC Engines are located in Appendix D.

### 2.2.1 LFG Bypass Operations ((§60.757(f)(2))

Title 40 CFR §60.757(f)(2) is not applicable at Ox Mountain because a bypass line has not been installed. LFG cannot be diverted from the control equipment.

### 2.2.2 Key Emission Control Operating Parameters (BAAQMD 8-34-501.11 & 8-34-509)

BAAQMD Regulation 8-34-501.11 and 8-34-509 are not applicable to the A-7, A-8, and A-9 Flares because the A-7, A-8, and A-9 Flares are subject to continuous temperature monitoring as required in BAAQMD Regulation 8-34-507 and §60.757(f)(1).

## 2.3 Temperature Monitoring Results (BAAQMD 8-34-501.3, 8-34-507, & §60.757(f)(1))

The combustion zone temperatures of the flares are monitored with Thermo-Electric Thermocouples. The temperature is displayed with a Yokogawa digital recorder, which is downloaded and archived. During the reporting period, there was one (1) temperature deviation of the A-9 flare. Appendix F contains the Flare Temperature Deviation/ Inoperative Monitor/ Missing Data Reports for October 1, 2015 through March 31, 2016.

## 2.4 Monthly Cover Integrity Monitoring(BAAQMD 8-34-501.4)

The cover integrity monitoring was performed on the following dates:

- October 19, 2015;
- November 30, 2015;
- December 30, 2015;
- January 29, 2016;
- February 29, 2016; and
- March 28, 2016.

The Monthly Cover Integrity Monitoring Logs are included in Appendix G.

## 2.5 Less Than Continuous Operation (BAAQMD 8-34-404)

Ox Mountain does not operate under BAAQMD Regulation 8-34-404 (Less Than Continuous Operation (LTCO)) and therefore, is not required to submit monthly LFG flow rates for LTCO wells. However, on October 22, 2015, Ox Mountain submitted a request to the BAAQMD for approval to run the following wells under 8-34-404: LTS-1, LTS-2, LTS-3, LTS-4, LTS-5, LTS-6, LTS-7, LTS-8, LTS-9, LTS-10, LTS-11, and LTS-12. Ox Mountain is awaiting approval from the BAAQMD for these wells.

## 2.6 Surface Emissions Monitoring (BAAQMD 8-34-501.6, 8-34-506, §60.757(f)(5) & California Code of Regulations (CCR) §95469(a))

The Third and Fourth Quarter 2015, and First Quarter 2016 Instantaneous and Integrated Landfill Methane Rule (LMR) Surface Emission Monitoring (SEM) events were completed by a third-party. Refer to the Third Quarter 2015, Fourth Quarter 2015, and First Quarter 2016, located in Appendix H, for detailed results.

The Third Quarter 2015 SEM Report was not yet available during the submittal of the April 1, 2015 through September 30, 2015 Semi-Annual Report, therefore it is included in Appendix H.

## 2.7 Component Leak Testing (BAAQMD 8-34-501.6 & 8-34-503, CCR §95465(b)(1)(B))

Quarterly component leak testing, pursuant to BAAQMD Regulation 8-34-301.2 and California Air Resources Board (CARB) §95465(b)(1)(B), occurred during the reporting period on the following dates:

- Fourth Quarter 2015 – October 29, and December 14, 2015; and
- First Quarter 2016 – February 23, and March 24, 2016.

Any exceedances of 500 or 1000 ppmv were detected and repaired as required by CARB Title 17 of California Code of Regulations Subchapter 10, Article 4, Subarticle 6, Section 95464(b)(1)(B) and BAAQMD Regulation 8-34-301.2. Refer to the Quarterly LFG Component Leak Monitoring Logs, located in Appendix I, for detailed results.

## 2.8 Waste Acceptance Records (BAAQMD 8-34-501.7)

The amount of waste accepted during the reporting period of October 1, 2015 through March 31, 2016 was approximately 570,706.11 tons. The current Waste-In-Place as of March 31, 2016 is approximately 24,039,167.94 tons.

The BAAQMD approved an increase of the current waste limit up to 26.5 million tons.

## 2.9 Non-Degradable Waste Acceptance Records (BAAQMD 8-34-501.8)

The GCCS Design Plan for Ox Mountain does not indicate non-degradable waste areas that are excluded from the collection system. Therefore, BAAQMD Regulation 8-34-501.8 is not applicable.

## 2.10 Wellhead Monitoring Data (BAAQMD 8-34-501.4 & 8-34-505)

Wellhead monitoring was performed on a monthly basis pursuant to 8-34-505. The well readings for October 1, 2015 through March 31, 2016 are included in Appendix J. Each well was monitored in accordance with the following requirements:

- 8-34-305.1 – Each wellhead shall operate under a vacuum;
- 8-34-305.2 – The LFG temperature in each wellhead shall be less than 55 degrees Celsius (°C) (131 degrees Fahrenheit [°F]); and
- 8-34-305.4 – The oxygen concentration in each wellhead shall be less than 5 percent by volume.

Wellhead monitoring was performed on the following dates:

- October 6, 12, 13, 16, 19, 22, 27, and 28, 2015;
- November 3, 4, 12, 19, 20, 23, and 30, 2015;
- December 1, 7, 8, 9, 11, 14, 21, 22, 23, 29, 30, and 31, 2015;
- January 4, 5, 8, 11, 12, 13, 18, 21, and 26, 2016;
- February 2, 8, 22, 23, 24, 25, and 29, 2016; and
- March 4, 7, 8, 11, 15, 17, 21, 22, 24, and 28, 2016.

### 2.10.1 Wellhead Deviations (BAAQMD 8-34-414 & §60.757(f)(1))

There were 62 wells with exceedances during the reporting period. Corrective action was initiated within the required 5-day time period and re-monitoring was completed within 15 days of the deviation pursuant to BAAQMD Regulation 8-34-414. See Appendix K, Wellfield Deviation Log, for further details.

### 2.10.2 Higher Operating Value (HOV) Wells

As of March 31, 2016, the following wells are approved to operate at a HOV:

#### 2.10.2.1 Oxygen HOV Wells

Pursuant to Permit Condition 10164, Part 18(b)(i), the oxygen concentration limit does not apply to the well listed below, provided that the oxygen concentration in the LFG at the main header does not exceed fifteen percent oxygen by volume (dry basis): HC-F06.

#### 2.10.2.2 Oxygen and Pressure HOV Wells

Pursuant to the notification and request for HOVs sent to the BAAQMD on November 3, 2015, the oxygen concentration limit does not apply to the wells listed below, provided that the oxygen concentration in the LFG at the main header does not exceed fifteen percent oxygen by volume (dry basis). Also per the notification and request, the wellhead pressure limit does not apply to the wells listed below, provided that the wellhead pressure does not exceed 0.5 inches water column (in. w.c.) of positive pressure. The wells to which these HOV values apply are as follows: LTS-1, LTS-2, LTS-3, LTS-4, LTS-5, LTS-6, LTS-7, LTS-8, LTS-9, LTS-10, LTS-11, and LTS-12.

## 2.11 Gas Flow Monitoring Results (BAAQMD 8-34-501.10, 8-34-508, & §60.757(f)(1))

The LFG flow rate is measured with a flow meter. The General Electric data panel displays the LFG flow and the digital Yokogawa data recorder records LFG flow every minute and is downloaded and saved to a compact flash card. The flow meter at each flare meets the requirements of BAAQMD Regulation 8-34-508 by recording data at least every 15 minutes. The flow meter is maintained and calibrated pursuant to manufacturer's recommendations. The flow data for each flare is available for review at Ox Mountain. Appendix L contains a summary of the monthly LFG flow rates for the flares. Appendix F contains the Flare Temperature Deviation/ Inoperative Monitor/ Missing Data Report for October 1, 2015 through March 31, 2016. There were no issues during the reporting period. Table 2-2 below is a summary of the total LFG flow for the reporting period of October 1, 2015 through March 31, 2016.

**TABLE 2-2 – TOTAL LFG FLOW FOR OCTOBER 1, 2015 THROUGH MARCH 31, 2016**

| Emission Control Device | Average Flow (SCFM) | Average $CH_4$ (%)* | Total Flow LFG Volume (SCF) | Total Flow LFG Volume Corrected to 50% $CH_4$ (scf) | Total $CH_4$ Volume (scf) | Total Heat Input (MMBTU) |
|---|---|---|---|---|---|---|
| A-7 (Flare) | 1,204.2 | 48.3 | 3,808,951.5 | 3,679,447.1 | 1,839,723.6 | 2,876.6 |
| A-8 (Flare) | 2,185.1 | 47.6 | 124,550.0 | 118,571.6 | 59,285.8 | 60.1 |
| A-9 (Flare) | 1,613.4 | 47.7 | 29,581,628.0 | 28,220,873.1 | 14,110,436.6 | 14,293.9 |

*$CH_4$ content was determined from their respective inlet locations. $CH_4$ concentrations determined during the annual source test will be used in lieu of monthly averages when weekly $CH_4$ concentrations are negligible due to monitoring conducted while devices are offline.
scfm = standard cubic feet per minute
$CH_4$ = methane
scf = standard cubic feet
MMBTU = million British thermal units
% = percent

## 2.12 Compliance with §60.757(f)(6)

*"The date of installation and the location of each well or collection system expansion added pursuant to (a)(3), (b), (c)(4) of §60.755."*

The GCCS was modified pursuant to Title V Permit Number A2266 during the reporting period.

A total of 14 wells were started up, and five (5) wells were decommissioned during the reporting period pursuant to Permit Condition 10164, Part 17b(i). Well Decommissioning and Startup Notification Letters that were submitted to the BAAQMD are included in Appendix B.

As of March 30, 2016, Permit Condition 10164, Part 17b(i) still allows for the replacement of an unlimited number of vertical wells, installation of up to 9 new vertical wells, installation of up to 18 new horizontal collectors, the decommissioning of up to 28 vertical wells, and the decommissioning of up to 9 horizontal collectors.

As of March 30, 2016 Ox Mountain consists of 173 vertical wells, 9 horizontal collectors, 1 leachate collection riser, and 1 trench collector.

## 2.13 Compliance with Title V Permit Condition Number 10164, Part 5

The unpaved segment of road extending from the end of the paved haul road to the working face does not exceed the 1,200 foot length limit.

## 2.14 Compliance with Title V Permit Condition Number 10164, Part 6

No vehicles exceeded the 10 mile per hour speed limit on the unpaved roads.

## 2.15 Compliance with Title V Permit Condition Number 10164, Part 7

All unpaved roads (excluding limited use access roads) were treated with 10 percent magnesium chloride dust suppressant solution at a rate of at least once per calendar month. From October 1, 2015 through March 31, 2016, dust suppressant was applied after any dry period consisting of 30 consecutive days with less than 0.09 inches of rain per day. In addition, water was applied to all unpaved roads at least 4 times per working day. The watering schedule was reduced during periods of sufficient precipitation to minimize dust emissions.

## 2.16 Compliance with Title V Permit Condition Number 10164, Part 8

All paved roadways were swept and washed down at least twice per week or as necessary to maintain a clean road surface.

## 2.17 Compliance with Title V Permit Condition Number 10164, Part 9

On-site vehicle traffic volume did not exceed the number of round trips described in Table 2-3 during any one day:

TABLE 2-3 - ON-SITE VEHICLE TRAFFIC VOLUME

| Vehicle Type | Daily Round Trip Limits |
|---|---|
| Transfer Trucks | 178 |
| Packer Trucks | 52 |
| Water Trucks | 36 |
| Soil Trucks | 200 |
| Misc. Heavy Duty Equipment | 60 |
| Light Duty Vehicles | 250 |

## 2.18 Compliance with Title V Permit Condition Number 10164, Part 10

Except for the vehicles listed in Table 2-4, the on-site one way distance traveled by any heavy-duty vehicle (on paved roads only) did not exceed 8,000 feet. This limitation does not apply to the vehicles listed in Table 2-4, which may travel up to a maximum of 11,700 feet (one-way distance) on paved roads:

TABLE 2-4 – VEHICLE TRAFFIC

| Vehicle Type | Daily Round Trip Limits |
|---|---|
| Water Truck | 36 |
| Fuel Trucks | 2 |
| Employee - Light Duty Equipment | 20 |

## 2.19 Compliance with Title V Permit Condition Number 10164, Part 13

No contaminated soil containing volatile organic compound (VOC) concentrations greater than 50 parts per million by volume (ppmv) was received during this reporting period. VOC-laden soil (containing less than 50 ppmv of VOCs) was received during this reporting period. The total VOC-laden soil placed did not exceed the 118.75 ton daily limit or the 31,800 ton yearly limit.

## 2.20 Compliance with Title V Permit Condition Number 16315 for S-12 Stockpile or Green Waste

Appendix O contains monthly and 12-month rolling records of the amount of yard and green waste received for this reporting period. These records are maintained at Ox Mountain and are available upon request.

## 2.21 Compliance with Title V Permit Condition Number 14098 and 25107 for S-5 Non-Retail Gasoline Dispensing Facility G#8524

Pursuant to Title V Permit Condition Number 14098 and Regulation 2-5, the facility's annual gasoline throughput did not exceed the 940,000 gallon (gal) limit in any consecutive 12-month period. Monthly gasoline throughput totals for the reporting period are included in Appendix P. These records are maintained at Ox Mountain and can be made available upon request.

Pursuant to Title V Permit Condition Number 25107, the Static Pressure Performance Test (Leak Test) for ST-38 was performed on October 31, 2014 and October 30, 2015. The Static Pressure Performance Test results were not available at the time and are included in Appendix P.

## 2.22 Compliance with Draft Title V Permit Condition Number 10164, Part 20

Pursuant to Title V Permit Condition Number 10164 Part 20, the facility's combined landfill gas flow rate to the flares (A-7, A-8, and A-9) did not exceed 2,155,000,000 scf corrected to 50 percent methane (dry basis, 70°F, 1 atmosphere [atm]) in any consecutive 12-month period. Monthly combined landfill gas flow rates to the flares for the reporting period are included in Appendix L. These records are maintained at Ox Mountain and can be made available upon request.

## 2.23 Compliance with Draft Title V Permit Condition Number 10164, Part 21

Pursuant to Title V Permit Condition Number 10164 Part 21, the facility's total reduced sulfur (TRS) compounds in the collected landfill did not exceed 265 ppmv as hydrogen sulfide ($H_2S$) averaged over any consecutive rolling 12-month period. Monthly 12-month rolling averages of TRS as $H_2S$ for the reporting period are included in Appendix Q. These records are maintained at Ox Mountain and can be made available upon request.

## 2.24 Compliance with Draft Title V Permit Condition Number 10164, Part 22

Pursuant to Title V Permit Condition Number 10164 Part 22, the facility's annual average LFG generation did not exceed 6,600 scfm. Also pursuant to Part 22, fugitive annual average LFG emissions rates, assumed to comprise 25 percent by volume of the LFG generation rate, did not exceed 1,650 scfm. Twelve-month rolling LFG generation rates are included in Appendix D.

Pursuant to Title V Permit Condition Number 10164 Part 22, toxic air contaminant (TAC) emissions from waste decomposition (S-1) will be determined from the annual LFG characterization analysis (Source Test) to determine compliance with the emission rate limits listed in Part 22(b). The 2016 Source Test has not yet been completed, and will be included in a future Semi-Annual Report. These records will be maintained at Ox Mountain and can be made available upon request.

# 4 START-UP, SHUTDOWN, MALFUNCTION (SSM) PLAN

## 4.1 SSM Activities for the Ox Mountain GCCS

The NESHAP contained in 40 CFR Part 63, AAAA for MSW landfills to control hazardous air pollutants include the regulatory requirements for submittal of a semi-annual report (under 40 CFR §63.10(d)(5) of the general provisions) if an SSM event occurred during the reporting period. The reports required by §63.1980(a) of the NESHAP and §60.757(f) of the NSPS summarize the GCCS activities. These two semi-annual reports contain similar information and have been combined as allowed by §63.10(d)(5)(i) of the General Provisions.

NESHAP 40 CFR part 63, AAAA became effective on January 16, 2004. Those SSM events that occurred during the NSPS semi-annual reporting period are reported in this section (October 1, 2015 through March 31, 2016). The following information is included as required:

- During the reporting period, there were 18 SSM events at the A-7 flare. Additional details are available in the SSM log for the A-7 Flare located in Appendix D, Flare SSM Log.
- During the reporting period, two (2) SSM events occurred at the A-8 Flare. Additional details are noted in Appendix D, Flare SSM Log.
- During the reporting period, 79 SSM events occurred at the A-9 Flare. The A-9 Flare was shut down and restarted during the reporting period due to the reasons noted in Appendix D, Flare SSM Log.
- During the reporting period, 24 SSM events occurred in the wellfield . Details are included in Appendix C, Well SSM Log.
- There were 123 events in total. In all 129 events, automatic systems and operator actions were consistent with the standard operating procedures contained in the SSM Plan. There were no deviations from the SSM plan.
- There were no identified exceedances during the reporting period in any applicable emission limitation in the landfills NESHAP (§63.10(d)(5)(i)).
- Revisions of the SSM Plan to correct deficiencies in the landfill operations or procedures were neither required, nor prepared (§63.6(e)(3)(viii)).

Attachments:
Combined Title V Semi-Annual and Partial 8-34 Annual Report

*I certify the following:*

> ***Based on information and belief formed after reasonable inquiry, information on the startup, shutdown, malfunction forms, all accompanying reports, and other required certifications are true, accurate, and complete.***

Carl Mennie
**Signature of Responsible Official**

4/5/2016
**Date**

Carl Mennie
**Name of Responsible Official**